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PLANT INDUSTRY

PLANT IMMIGRANTS

No. 124. AUGUST, 1916.

GENERA REPRESENTED IN THIS NUMBER.

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Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This multigraphed circular is made up of descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behavior in America of previous introductions. Descriptions appearing here are revised and published later in the INVENTORY OF PLANTS IMPORTED.

Applications for material listed in these pages may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the annual catalogue entitled NEW PLANT INTRODUCTIONS in which are described the plants ready for sending out.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

David Fairchild,

Agricultural Explorer in Charge.

February 13, 1917.

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Ananas sativus Schult. f. (Bromeliaceae.) 43070. from Lawnton, Queensland, Australia. Presented by Mr. Reginald W. Peters, Director, Queensland Acclimatisation Society. "A seedling pineapple we raised and have named *Commonwealth*. It is distinct, of fair size and very tender, with almost entire absence of stalk or core. It is sweet and perhaps lacking a little in sub-acidity but a fruit most consumers would enjoy." (Leslie Gordon Corrie.)

Astrocaryum sp. (Phoenicaceae.) 43058. Seeds from Tierras de Loba, Bolivar, Colombia. Collected by Mr. H. M. Curran. "*Palma estera*. Common palm of the forest. Seeds with an edible coating and probably yields a commercial oil. Plants with huge ornamental fronds, twenty feet or more in length, glossy green above, glossy or silvery white beneath. Entire plant covered with sharp black spines. This palm has practically no stem. Suitable only for planting in moist localities or greenhouses." (Curran.)

Bertholletia nobilis Miers. (Lecythidaceae.) 43114. Fruits and seed from Para, Brazil. Secured through Mr. George H. Pickerell, American Consul. "*Brazil-nut* or *Para-nut*. A tall handsome tree, with oblong wavy leaves, which are 14 to 16 inches long and about 3 inches broad, native of Guiana, Venezuela and Brazil. In its native home, especially on the banks of the Amazon and Orinoco, the tree attains a height of over 100 feet. The tree has been introduced at Paradeniya in 1880, and notwithstanding the indifferent ground chosen for it when first planted out, appears to find here a congenial home. It is now about 60 feet high and produces at the top each year, in the dry season, large erect racemes of white flowers, followed a few months later by a number of large brown fruits, which hang on the tree for some months after ripening. Ridley records similar success with the tree at Singapore, where it was introduced in 1881. Each fruit is from 4 to 6 inches in diameter, with a hard brown woody shell which has to be sawed or broken up with an axe in order to obtain the nuts (seeds). In the interior, closely packed, are from 10 to 12 large angular seeds with a brown horny testa; these are the *Brazil nuts* of commerce, which form an important article of export from their native country, being largely used for dessert in Europe, America, etc. The tree may be propagated by seed or gootee (layering), and

thrives best on a rich alluvial soil, in hot and moist climate." (Macmillan, A Handbook of Tropical Gardening and Planting, p. 144, under *Bertholletia excelsa.*)

Bulnesia arborea (Jacq.) Engler. (Zygophyllaceae.) 43057. Seed from Calamar, Colombia. Collected by Mr. H. M. Curran. "*Guayacan.* One of the principal trees of this region, 60 to 70 feet high, 24 inches in diameter, wood hard, durable. Flowers yellow. Used for railroad ties, are not expensive and weathers well. Magdalena river above Calamar, March 25, 1916." (Curran.)

Citrus sinensis (L.) Osbeck. Plant from Avondale, Auckland, New Zealand. Presented by Mr. H. R. Wright, Avondale Nursery. "*Best's seedless.* A new local seedling of great merit, and, as its name indicates, perfectly seedless; in quality one of the finest we have ever sampled, and sure to become a great favorite; the most vigorous of all oranges." (Avondale Nursery Catalogue.)

Coffea amara F. F. Bruijning. (Rubiaceae.) 43073. Seed from Fort Dauphin, Madagascar. Presented by Mr. G. Regnard, Port Louis, Mauritius. "Local name *Mautsaka.* French name *Cafe Marchal.* Without caffeine." (Regnard.) Mr. Wm. B. Harris, of the United States Department of Agriculture, reports as follows on the physical analysis of this coffee: "I have examined the caffein-free coffee of Madagascar.---The liquor from both the medium and the dark roast is exceedingly bitter, similar to the bitter taste from an orange seed or the bitter of quinine. With this character, in my opinion, it is worthless for trade purposes, whether it contains caffein or not."

Eriobotrya japonica (Thunb.) Lindl. (Malaceae.) 42148. Plant from Avondale, Auckland, New Zealand. Presented by Mr. H. R. Wright, Avondale Nursery. "*Thames Prize.* Named so from the fact that it has always carried off the prize at the Thames Show, the district of its origin; fruit of large size and very fleshy. Tree very vigorous." (Avondale Nursery Catalogue.)

Hydnocarpus kurzii (King) Warburg. (Flacourtiaceae.) 43227. Seed from Calcutta, India. Purchased from Messrs. Smith, Stanistreet & Co., through Mr. James A. Smith, American Consul-General. "A large tree, 40 to 50 feet high, of the forests of Sylhet, Chittagong

and Burma. The seeds yield the true chaulmugra oil, long supposed to be the product of *Gynocardia odorata*. Chaulmugra oil has long been known and used in India as a remedy for cutaneous diseases, and has become a drug of some importance in European practice. The seeds are bought to Calcutta, chiefly from Chittagong, and are of two kinds (1) mature seeds with brown kernels, rich in oil; (2) immature seeds with black kernels, poorer in oil. The seeds arrive in the market at the end of the rainy season in November and December. To extract the oil the kernels are separated from the shells and dried in the sun. They are then pounded with a pestle and mortar and the broken kernels put into canvas bags and the oil expressed with the aid of fire in a castor-oil mill. The oil is of two kinds (1) clear, bright, straw-coloured; (2) muddy and precipitating a sediment of earthy colour. One maund of oil is obtained from 4 to 5 maunds of seed." (Extract from Watt's Commercial Products of India.) Authentic cures are reported from the use of this oil in the treatment of leprosy and its employment has greatly relieved the suffering of those afflicted by this terrible disease. (Fairchild.)

Malus sylvestris Miller. (Malaceae.) 43151-43174. Plants of twenty-four varieties of apple from Avondale, Auckland, New Zealand. Presented by Mr. H. R. Wright, Avondale Nursery.

Mangifera indica L. (Anacardiaceae.) 43224-43226. Seeds of the mango from Mexico. Presented by Mr. W. Moore, British Vice Consul, La Paz, B. C. Mexico. Acting on the advice of the American Consul at Mazatlan, Mexico, the Department of Agriculture requested the Navy Department to instruct a vessel to call at La Paz, Lower California, Mexico, to obtain seeds of the various varieties of mangoes grown in that district, said to be very good. Accordingly, the U. S. S. Brutus stopped at this port, and with the cooperation of the British Vice Consul, Mr. Frank W. Moore, a box of seeds was obtained.

Owenia venosa Mueller. (Meliaceae.) 43071. Seed from South Yarra, Melbourne, Australia. Presented by Mr. J. Cronin, Curator, Melbourne Botanic Gardens. An Australian tree reaching a height of 40 feet with a diameter of 3 feet. A native beverage is made from the sour fruit, and the durable easily worked wood

which is of great strength and highly colored in various shades from yellow to black is used for cabinet work although its excessive weight and hardness are against its common use. (Adapted from Maiden, Useful Native Plants of Australia.)

Passiflora lutea L. (Passifloraceae.) 43115. Seed from Augusta, Georgia. Presented by the P. J. Berckmans Company. The ordinary yellow passion-flower of the south, climbing or trailing to a height of 10 feet. Flowers greenish-yellow, nearly an inch across, berries half an inch in diameter, smooth, deep purple, not edible. This vine occurs native as far north as Pennsylvania and Illinois, and it is quite probable that hardy hybrids with some of the edible Passifloras may be secured by crossing.

Prunus nigra Aiton. (Amygdalaceae.) 43076-43112-43202-43212. Cuttings from Canada. Secured by Prof. M. J. Dorsey, University of Minnesota, St. Paul. "Scions from the most promising of the W. D. Buchanen seedlings, growing in the orchard at the Manitoba Agricultural College. These were selected for their promise from the large collection of Mr. Buchanen and represent the best wild types found in the range of the species in Canada. No records are available as to their exact place of origin." (Dorsey.)

Prunus salicina Lindley. (Amygdalaceae.) 43175-43182. Plants of eight varieties of Japanese plums from Avondale, Auckland, New Zealand. Presented by Mr. H. R. Wright, Avondale Nursery.

Pterocarpus marsupium Roxburgh. (Fabaceae.) 43189. Seed from Dindigul, Madura District, South India. Presented by Mr. W. P. Elwood. "*Vengai.* A tree with beautiful, hard wood. The tree grows at an elevation of from 3000 to 4000 feet and endures a good deal of heat and drought. A great many of the seeds are destroyed by worms and other insects entering the seed vessel at the side." (Elwood.)

Raphanus sativus L. (Brassicaceae.) 43061-43069. Seed of nine varieties of radish from Yokohama, Japan. Purchased from the Yokohama Nursery Company.

Rubus strigosus Michx. (Rosaceae.) 43195-43201. Seed from Canada. Collected by Mr. M. J. Dorsey, University

of Minnesota. "Raspberries carefully selected from plants bearing berries of the best type for the species in the regions around Lake Winnipeg and the Riding Mountains in Canada for the purpose of securing the wild raspberry for breeding purposes in the northern United States. This species grows abundantly and is generally distributed in the localities visited in Manitoba. It is quite similar in appearance in its northern range to that of the northern part of Minnesota where I have had the opportunity to observe it quite extensively in the wilds, especially in the region of the Red Lakes, Grand Rapids, Cloquet, Mille Lac, etc. It seemed from the preliminary survey of the field that it would be best to visit localities on the edge of the granite area extending in a northerly direction about sixty miles east of Winnipeg, as well as the region of the Riding Mountains. The granite area was visited at points around Lac du Bonnet, the Winnipeg River and the Pinawa River. From these points on the margin of the granite area in the east I proceeded to the west from Winnipeg to the Riding Mountains. Here *R. strigosus* grew generally along ditches and roads and in the burned-over areas of the foothills. In the eastern region the raspberries were on the whole bearing more abundantly than those in the west at the Riding Mountains. The isothermal lines extend considerably northward in this region so it seems to me from the progress of the season and the nature of the vegetation that perhaps all told the selections in the east on the granite area were made from stock subjected to harder weather conditions than in the west. Of course, in this part of Canada when winter sets in it is quite constant, and there is generally snow enough to cover raspberries growing in the wild. For this reason there may be an extension of the species northward owing to its natural protection rather than its ability to withstand cold." (Dorsey's report on trip Aug. 14, 1916.)

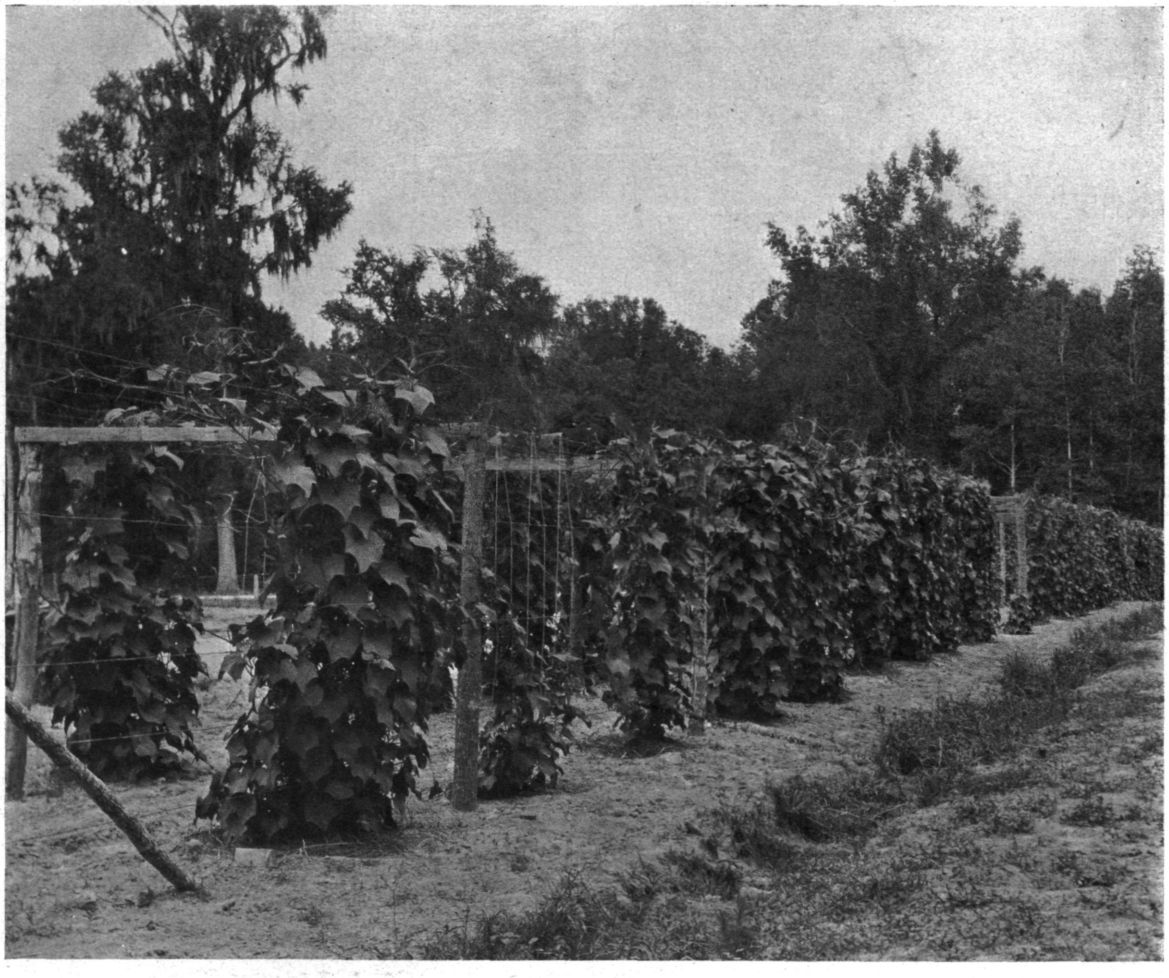
Tumion nuciferum (L.) Greene. (Taxaceae.) 43075. Seeds from Hankow, China. Procured through the American Consul General. "*Fei Tzu.* Occurs in the southern islands of Japan and in the forests of southern and central Hondo, attaining its greatest development on the river Kisagawa, 'rising to a height of 80 feet, and forming a tree unequalled in the massiveness of its appearance and in the beauty of its bright red bark and lustrous dark green, almost black foliage.' On

the southwest coast of Hondo where it is associated with Camellia, *Diospyros kaki,* and other garden favorites, it is somewhat different from the inland tree; the head is more dense and with a rounded top, not unlike that of some of the older Yews in this country; the leaves too are shorter, narrower and more pointed. The wood is strong and straight-grained; it is much valued for building and cabinet-making." (Veitch's Manual of Coniferae, 2d ed. p. 119, under *Torreya nucifera.*)

Urena lobata L. (Malvaceae.) 43074. Seed from Santiago de las Vegas, Cuba. Presented by Mr. Juan T. Roig, Botanist, Agricultural Experiment Station. "The most promising native fiber plant, known as *Malva blanca.* Is considered a good substitute for jute." (Roig.)

Vicia faba L. (Fabaceae.) 43228. Seed from La Paz, Bolivia. Presented by Mr. John D. O'Rear, United States Minister. "The only variety of horse bean that is cultivated in this country. The bean is produced very successfully in this country, especially in the high altitudes, and constitutes one of the principal articles of diet of the Indians of the Altiplano, who use it in roasted form. It is also used widely as table food, it being of very good quality, and when properly prepared provides a very wholesome and delicious dish. These seeds are dried in the same form as used by the natives for preserving the seed from one season to another, and will have to be soaked in water for two or three days before planting." (O'Rear.)

Zea mays L. (Poaceae.) 43117-43118. Seed of two varieties of corn from Ottawa, Canada. Presented by Mr. J. H. Grisdale, Director, Central Experiment Farm. Mr. A. J. Logsdail, of the Central Experimental Farm, Ottawa, Canada, writes as follows: "We are forwarding to you samples of Early Malcolm sweet corn, and some of its progeny produced here at the Central Experiment Farm. The Malcolm corn, in each instance, was the pollen parent of these crosses; the strains of early Ottawa were produced by employing Early Adams as the female parent, and the Squaw strains (have not been named as is evident) were produced by using our native Squaw corn, a dwarf, early maturing type of flint corn. We have found that this seed does best in areas where the average length and development of the season is similar to our conditions around Ottawa."

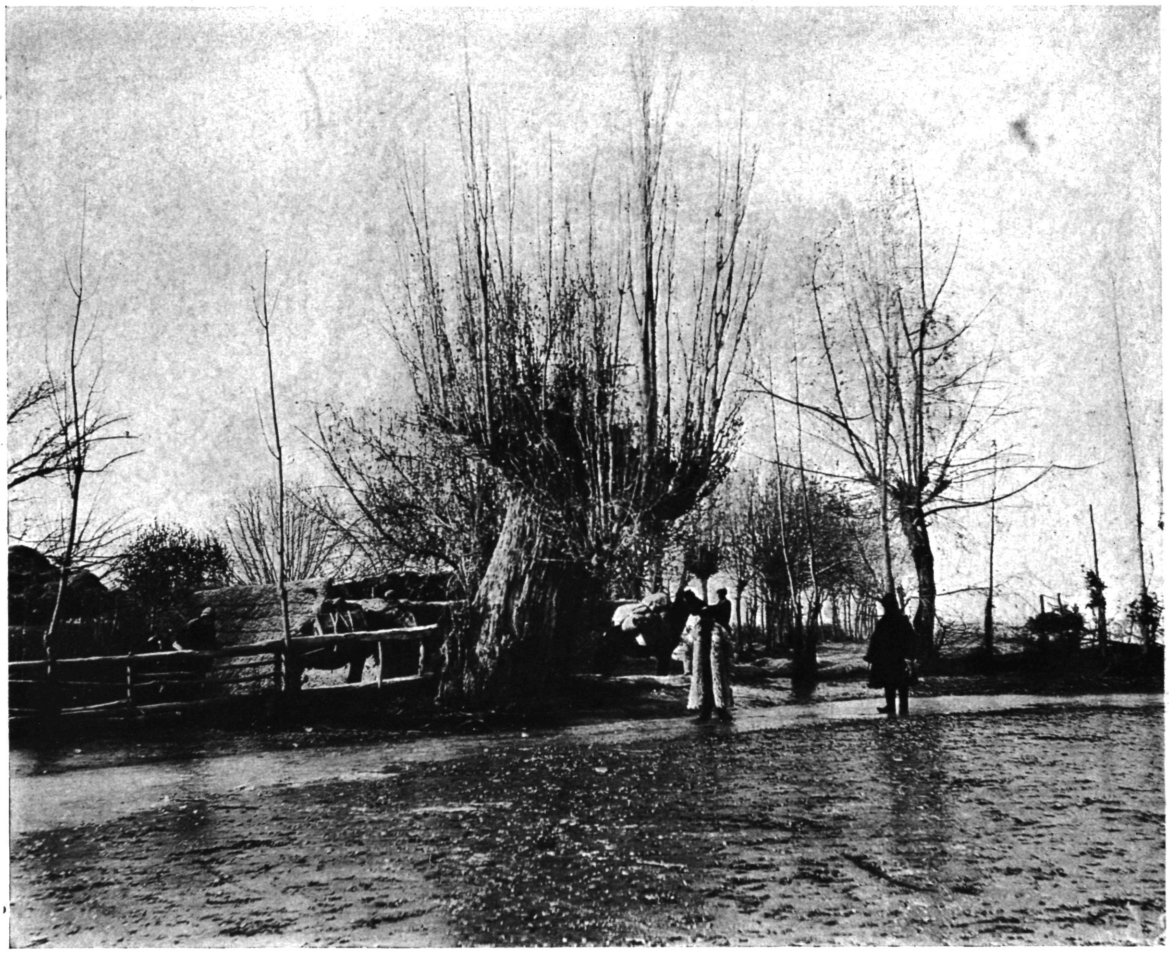


A TRELLIS OF YOUNG CHAYOTE VINES IN FLORIDA, CHAYOTA EDULIS.

The chayote vine is so vigorous that it requires an arbor or high trellis for its successful culture. This photograph taken on June 5 shows the vines after they are well started. Before October they will completely cover the arbor. Their unique fruits are borne mainly on the inside or shady side of the arbor. Although chayote arbors are seen frequently in the West Indies, South America, and Madeira, and small private plantings of this vegetable have been maintained near New Orleans for many years, its excellent qualities are quite as unknown to the general public as though it had never been introduced. Two acres of it are now growing at the Brooksville Garden. Photograph (P19679FS) taken by P. H. Dorsett at Brooksville Field Station, June 5, 1916.

GROVE OF BALSAM POPLARS IN THE WU TAI MOUNTAINS OF CHINA. POPULUS SUAVEOLENS, S. P. I. No. 22861.

This species, which is a native of Siberia and China, is used extensively by the Chinese for planting at the mouths of ravines to bind the stones and sand and prevent the mountain torrents from carrying their débris down over the cultivated fields below. It grows successfully at elevations of 8,000 feet. It is a white-barked species and its leaves when young have a balsamic odor. It may find a use in America similar to that made of it in China. Photographed (P5417FS) by F. N. Meyer, Wutaishan, Shansi, China, February 27, 1908.



AN OLD LOMBARDY POPLAR IN CHINESE TURKESTAN.

This old specimen of the so-called Lombardy poplar, *Populus italica*, is said to be 125 years old. It stands at the edge of a pond at Bas-Lengar, Chinese Turkestan. To Mr. Meyer it seems very likely that these so-called Lombardy poplars originated in central Asia, for one finds them in such numbers and in such out-of-the-way places and of such ages that it appears most unlikely that they should have been brought in from southern or western Europe. Photographed (P5636FS) by Frank N. Meyer at Bas-Lengar, Chinese Turkestan, December 7, 1910.

A RARE AVENUE POPLAR FROM CHINA. POPULUS SIMONII F. FASTIGIATA, S. P. I. No. 22363.

The typical form of this species of poplar is a very desirable perfectly hardy tree for the colder sections of the United States. This slender pyramidal form discovered by Meyer at Shiling in the Chihli Province of China, appears to have unusual promise as an avenue tree or in situations where the Lombardy poplar has been heretofore used. On the estate of Mr. Cyrus McCormick, at Lake Forest, Ill., a row of young trees has remained so far resistant to the poplar borer and its behavior there has led to its trial in the Chicago parks. There is a legitimate use for the pyramidal poplar, though it too often crowds out more precious trees. Photographed (P5412FS) by Frank N. Meyer, at Shiling, Chihli Province, China, January 25, 1908.

Notes from Correspondents abroad.

Mr. Meyer in a communication from Japan, says: "These last days I have been making inquiries into the peppermint-situation, but on the whole with negative results. You may remember you asked me for peppermint roots for Dr. Stockberger. Well I first saw the American Vice-Consul about the roots, that they sent in 1911, (No. 32167); he did not know, but he sent for the gardener from whom they had obtained them. This man first sent his wife, because it was rainy weather yesterday, but in the afternoon he showed up himself. He said there were three kinds grown in this part of Japan and the kind he obtained for the Consul was the best. He said that to go to the peppermint farms and to come back again would take two days. He did not know varietal names at all and proved to be quite useless for giving further information. I then went to the Kobe Foreign Board of Trade for information, but there I couldn't get anything beyond the intelligence that the peppermint-oil from Hokkaido is considered better than the local product. Then I visited the firm of McKay & Co., a firm exporting mint-oil, several times and met a Japanese who is dealing in mint-oil. This man told me that there is only one variety of mint and that the quality of the oil depends upon the care that is bestowed in the process of getting the oil out of the leaves. The mint is simply called 'Hakka' and he had never heard of varieties. Mint farms exist in the vicinity of Okayama, $\frac{3}{4}$ hrs. by train to the west of Kobe. I then saw a specialist in the great firm of Suzuki & Co., wholesale dealers in oils and drugs and this gentlemen told me there is only one variety grown in Japan, but since they have three crops a year and since the product of these crops varies considerably, people might think that there are several kinds of peppermint, but this is not so. Well, I had to give it up. Had I had more time at my disposal I would have visited the farms, but as my boat leaves for China tomorrow morning, I cannot do so. This, however is a nice piece of work to do for a young fellow who wants to train himself into an efficient agricultural explorer. I hope to retire from this work after some years and a young healthy and intelligent fellow ought to continue this work in Asia. One thing I would suggest to Dr. Stockberger, viz.: if there are varieties of peppermint and if these varieties indi-

vidually differ why not do as in sugar beets and in sugarcane and collect seeds and sow them out, testing each individual plant by itself! Perhaps some better types will be envolved than we possess now! In the American Consulate I saw a report on peppermint from the hand of Consul Hunter Sharp, addressed to the Asst. Secretary of State, dated Kobe, Japan, Nov. 23, 1906. Dr. Stockberger might be interested in obtaining a copy of it, if he has not got it already.

Mr. Frank N. Meyer writes from Yokohama, Japan, October 20, 1916, as follows: Among my notes I found a short scribble from you in blue pencil: Meyer to investigate Momme pickle industry of Japan. Yesterday afternoon I asked Mr. Watase about this and he gave me the following description: pick fruits when full grown but before they are quite ripe; they must be still hard; soak in a tub with water for 24 hours; drain off water, take salt and mix 1/3 salt to 2/3 fruits in quantity, mixed that way let them stand for a period from 5-7 days. Should the weather be cool 7 days will make them right; should it be warm 5 days is enough. Leaves of the red-leaved variety of *Perilla nankinensis* should be mixed among them. After this salting process the fruits are taken out and spread out in the sun to dry, then the juice of the salted red perilla-beans is sprinkled over them by squeezing a hand full of them and the fruits turned over. Every day this process is repeated and after 3 to 5 days they are put up in vessels in moderately weak brine, perilla leaves mixed among them and in this way the product can be kept almost indefinitely. Mr. Watase was shown fruits said to be 100 years old. Mr. Watase and I when we were talking about it both got the water freely flowing in our mouths. 'Yes,' Mr. Watase said, 'our famous deceased General Nogi used to say to his soldiers on a hot day in the Manchurian campaign, when there was no water in sight, "Boys, how would you like to have now some nice pickled mumes?"- and nobody after that complained about thirst.' I hope this recipe may be of use to you. By the way, if you go to the Nanking restaurant on 9th St., you can get there some very fine preserved mume fruits; they are called 'Ching mae' and are a high class delicacy in old Cathay."

Mr. Wilson Popenoe writes from Guatemala City Nov. 8, 1916: "As to early maturing varieties of the chayote; I presume you mean by this those which will come into fruit within a few months from planting. Apparently they have chayotes here all the year round, and consequently it is hard to tell which are the early and which are the late varieties, but I will look into the matter and see what I can find out. It is hard to get real information on such a subject, but by watching for plants in the gardens as I go round, I can probably get some ideas as to the habits of the different varieties. I am glad you liked the large white *perulero.* This still looks to me like the best variety here, and I have asked several of the natives about it, and they have expressed the same opinion. It is rare, and I have seen none of the fruit in the market since I bought the last lot I sent you. There is no end to the varieties of the chayote here, but the choice varieties are very few. I must say, although I do it with hesitation, that my appetite for chayotes is on the wane. This is no reflection on the chayote, which is a meritorious vegetable per se, but we get them every day, and nearly always cooked in the same way,-just boiled and served without anything on them. I want to tell you, however, that you Americans are making a great mistake in not familiarizing yourselves with the *ichinta.* No, this is not a new vegetable, it is merely the root of the chayote, and I believe it is just about as good as the chayote itself. It reminds me greatly of sweet cassava, which we used to get in Brazil. It is starchy, and not unlike an Irish potato in texture and appearance. They cut it in slices and fry it in batter, and it is good. In the markets here it is extremely common. I have also eaten the tender shoots of the chayote,- I did not know what I was eating until I had finished,-and they are not bad, but I do not consider them any improve ment over the various kinds of greens we already have in the states. I believe that large white *perulero,* if grown under good culture, would be a cracking good chayote, and I hope it will be given a thorough trial. As yet I have not hunted for any chayote diseases, but the vines I have seen have seemed to be healthy, and I have noticed nothing which seemed to be interfering with their growth seriously. No doubt there are diseases, but so far I have run across nothing which seemed to be wiping out the vines. You expect to find a disease, or several of

them, on everything in the tropics, and you are rarely disappointed, though it is surprising how little harm many of them do down here. The trouble is, they might not be so harmless in another climate, and in any event, we don't want to try them to find out. That red-fleshed papaya was a surprise to me. I am generally skeptical about red-fleshed fruits, the term 'red' is so commonly used for brown that you can't trust it, but I am willing to say that the papaya I sent in has a very decided reddish tint, and the flesh is deep reddish salmon in color, quite distinct from the color of the varieties we are now growing in Florida. It is striking and attractive, but the quality of the fruit may not be equal to some of the best we already have. You know the papayas vary greatly in sweetness. Probably you noted my photographs of the *anay* growing in the forest at Mazatenango. Your idea of getting photos of the aguacate in the wild is a good one, and if I can find wild trees in the Alta Verapaz, -where people here seem to think they exist, I will try for some photographs. I hope the *anay* will turn out to be a new species. I am on the track of another species of Persea which grows down about Zacapa, and I saw in Amatitlan a single young tree which seems to be a Persea but is apparently not an avocado. I am going to get budwood of it."

United States Department of Agriculture.
Bureau of Plant Industry.
Office of Foreign Seed and Plant Introduction.
Washington, D. C.

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